CHRONOLOGY OF AIR FORCE SPACE ACTIVITIES

I. INTRODUCTION:

The Air Force recognized the potentials of space at the end of World War II. Just as air power permitted a tremendous improvement in our capability to apply military force, so in the future would aero-space power enable the Air Force to more effectively perform its role of developing doctrines and weapons, organizing, training, and equipping forces for assignment to Unified or Specified Commands. (U)

In highlighting space activities within the Air Force, it should be emphasized that a primary premise exists in that military operations in space are the logical extensions of existing airpower missions. The general areas to be covered in this outline were initially conceived based on the foregoing philosophy. The present and future applications resulting from Air Force space activities are by design destined for the eventual military operation of weapon systems. The areas to be covered are as follows:

A. Reconnaissance and Detection Satellite Systems.

B. Boost Glide System.

C. Rocket Engine Development for Space Systems.

D. Vehicle for Space Testing. (U)

II. PRIOR TO SPUTNIK:

A. Reconnaissance and Detection:

The concept of using an earth-circling satellite as a reconnaissance vehicle was visualized by the Air Force in 1946. The newly created Rand Corporation was requested to investigate the feasibility of such a system.

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The Rand studies continued through 1953 and a summary report was issued in early 1954 in which the Advanced Reconnaissance System feasibility was established and development was recommended. (U)

In late 1954, the Air Research and Development Command published a System Requirement on an Advanced Reconnaissance System and subsequently in early 1955 the Air Force issued a General Operational Requirement for a strategic reconnaissance satellite weapon. Shortly thereafter design study proposals were solicited from Lockheed, RCA, Martin and Bell. (U)

A WS 117-L Preliminary Development Plan was published within ARDC in early 1956. A contractor evaluation board met in March to evaluate the 117-L design studies previously mentioned. Subsequent action based on this evaluation resulted in the Air Force awarding a prime contract for the WS 117-L to Lockheed in October of 1956. (U)

In April of 1957 a Systems Development Plan for the Advanced Reconnaissance System (WS 117-L) was prepared for various degrees of operational uses during the time period 1960 to 1965. A determination of the level of funding as related to desired operational dates was in process at the time of Sputnik I. ~~(Secret)~~

D. Boost Glide (Dyna Soar):

Boost Glide is a concept for operating at high altitudes and high speeds in the range between conventional aircraft and space vehicles. A winged vehicle is mounted on a large rocket and is boosted to the desired speed and altitude. The vehicle then continues on the desired course, unpowered. Both aerodynamic and centrifugal forces act on the vehicle so that it has some of the characteristics of airplanes as well at very high altitudes. Such experiments are required to more fully define the characteristics of the space environment with direct application to the design of advanced Air Force weapon systems. A corollary requirement exists in the area of improved airborne components and subsystems, such as communications, auxiliary power, television, IR devices, high altitude cameras, decoy and countermeasure techniques, etc. (U)

April 1956	A proposal for the development of a ballistic, orbital, and lunar research and test system was generated within the Air Force.
July 1956	Hq USAF approved the concepts contained in the proposal and directed preparation of a development plan.

Four phases were proposed under this plan for a Ballistic Weapons R&D Supporting System (BALWARDS), as follows: Phase I: A simple, flexible, economical and reliable vehicle for testing at altitudes of 300 to 500 miles. Phase II: A vehicle with higher performance for altitudes from 1000 to 2000 miles. Phase III: By using parts of the vehicles of Phases I and II in conjunction with ATLAS, provide a capability for circumlunar flights, plus 24-hour orbit flights. Phase IV: A vehicle with even higher performance for lunar landings and missions in the vicinity of Mars and Venus. Phases II, III, and IV were to be design studies only. (U)

In May 1957, Hq USAF disapproved the BALWARDS development plan and directed revision to delete Phases III and IV, revalidate the large number of requirements used to justify the systems, and conduct a range adequacy survey. System 454-L was redesignated 609-A in July 1957, and the title was changed to Ballistic Research and Test System (BRATS). (U)

III. AFTER SPUTNIK:

In November of 1957, the Air Force proposed setting up an organization designed to handle the functions of planning, organizing, and managing the Air Force program in astronautics. Subsequent action within the Office of the Secretary of Defense and the establishment of the Advanced Research Projects Agency (ARPA) overtook any such organizational action within the Air Force. (U)

A. Reconnaissance and Detection:

By Department of Defense directive, the WS-117L program was transferred from the Air Force to ARPA in May of 1958. This action was further implemented by ARPA Order No. 9-58, 30 June 1958, in which the Air Force was directed to submit a detailed development and financial plan to ARPA. In effect the Air Force became an agent for operating the program under the direction of ARPA. (U)

The WS-117L program has been under the direction of ARPA until just recently. During this period the program was separated into three projects as follows: ~~(Secret)~~

DISCOVERER - A THOR-boosted satellite program consisting of 25 launches started in early 1959 and to continue through 1960. Purpose of the program is to provide engineering data for the follow-on related programs. Eight launches were accomplished to date during 1959. ~~(SECRET)~~

SAMOS - An ATLAS-boosted satellite program with the first flight scheduled for mid-1960. The purpose of this program is to achieve a military reconnaissance capability. ~~(Secret)~~

MIDAS - An ATLAS-boosted satellite program with the first flight scheduled for early 1960. The purpose of this program is to achieve an early warning capability. (~~Secret~~)

B. Boost Glide (Dyna Soar):

10 Oct 57	Dyna Soar Development Plan submitted.
25 Nov 57	$3 million of FY 58 released. Dyna Soar Development Plan approved. Development Directive No. 94 issued.
24 Mar 58	Proposals received from Martin-Bell, Boeing, Convair, Douglas, Lockheed, McDonnell, and Republic.
1 May 58	Source Selection Board recommendations to Hq USAF.
20 May 58	Dr. Dryden signs NACA-AF Memo on Dyna Soar (signed by Gen White on 13 May 58).
16 Jun 58	Source Selection of Boeing and Martin to continue design studies announced.
7 Nov 58	ARPA Memo to Secretary of Defense supports Dyna Soar; announces intention to take over weapon system studies.
2 Dec 58	Gen White signs new AF-NASA memo of understanding (signed by Dr. Glennan on 14 Nov 58).
1 Apr 59	Competition ended - evaluation begins.
6 Apr 59	Proposals received from Martin and Boeing.
9 Nov 59	Selection of Boeing to build the vehicle and Martin to provide the booster announced. (U)

IV. FUNDING:

A. Reconnaissance and Detection:

	FY 1958	FY 1959	FY 1960
WS 117-L - AF Funds	108.2 M.	1.4 M.	-0- M.
SAMOS (formerly SENTRY)			
AF funds	-0-	-0-	11.5
ARPA funds	22.7	82.9	152.4
MIDAS			
AF funds	-0-	-0-	28.9 1/
ARPA funds	-0-	22.8	66.0
DISCOVERER			
AF funds	-0-	-0-	34.6 1/
ARPA funds	-0-	132.3	66.6

1/ Transferred to ARPA.

B. Boost Glide (Dyna Soar)

	FY 1958	FY 1959	FY 1960
	3.0 M.	15.0 M. 1/ 14.5 2/	35.0 M.

1/ (Expended)

2/ (To be expended to selected contractor)

C. Rocket Engine Development

Funding in this area is an integral part of the various Ballistic Missile Programs. (U)

D. Test Vehicle (HETS):

	FY 1958	FY 1959	FY 1960
		4.1 M.	3.9 M.